DEPARTMENT OF ENVIRONMENTAL PROTECTION

AND

DEPARTMENT OF INLAND FISHERIES AND WILDLIFE

INVASIVE AQUATIC SPECIES PROGRAM REPORT

TO THE JOINT LEGISLATIVE COMMITTEES ON NATURAL RESOURCES AND FISH & WILDLIFE

REQUIRED BY:
PUBLIC CHAPTER 20_B PART C

"AN ACT TO PREVENT THE INFESTATION OF INVASIVE AQUATIC PLANTS AND TO CONTROL OTHER INVASIVE SPECIES"

Executive Summary

In 2001, Maine's Legislature passed "An Act to Prevent the Infestation of Invasive Aquatic Plants and to Control Other Invasive Species". Section C-1 of the legislation requires this report on the activities related to invasive plant education and inspections during 2001 and plans for 2002. In this report, DEP and DIFW have quantified the costs and hours spent on these activities, and offer observations and recommendations for program improvements.

As of 2001, ten sites have been confirmed to have populations of variable milfoil. Several of these sites have been GIS mapped and some limited efforts begun to contain populations where feasible. In a few instances, hand removal may offer a possibility to eliminate these infestations. A citizen monitoring program has trained 250 volunteers who will begin coverage of hundreds of lakes in 2002. This monitoring will probably result in a substantial increase in the number of sites with confirmed milfoil populations.

Education and outreach built on previous work by cooperators and introduced some new elements. Thousands of boater contacts were logged by DIFW wardens and volunteers, mostly in the context of voluntary inspections or regular warden fishing and boating checks. These contacts offered the opportunity to alert boaters to the problem of invasive plants and provide brochures. DIFW safety training staff and DOC park staff have logged hundreds of additional personal contacts. An aggressive public relations campaign included distribution of over 160,000 brochures this season, almost 20,000 handouts at the York toll plaza, and 1,000 TV public service announcements. Newspaper feature articles and radio coverage were also widespread. As a result, an omnibus survey showed that up to 80% of Maine residents now know something about the problem, but far fewer also know what to do about it.

Transport of aquatic plants on boats and gear is the major cause of spreading invasive plants. MDOT and DEP traffic surveys and boat counts indicated that almost 50,000 boats cross our borders each year. Over 3000 voluntary boat and trailer inspections for aquatic plants were conducted as a pilot program at seven roadside sites and 55 launching ramps. While slightly over 3% of the boats were carrying plants, this amounted to 112 actual instances of plant transport. Based on our traffic data, well over 1200 boats carry plants around Maine each summer, each instance offering an opportunity to infest a lake or stream.

DEP and DIFW will continue to enlist the aid of a variety of state agencies and non-governmental groups during 2002. In particular, organizing voluntary boat inspections at launching ramps and deploying volunteer lake monitors are cost efficient ways to both educate the public and reduce plant spread. Continued warden involvement in boater contact, including voluntary inspections, are planned for 2002, along with increased boater contacts through direct mailings and distribution of revised educational materials. Due to the relative inefficiency roadside inspections, we do not plan an extensive effort for 2002. The degree to which certain program elements are developed, including expanding of education efforts, developing a rapid response and monitoring capability, and encouraging local projects, will depend on a successful launch of the new Lake and River Protection Sticker funding program in 2002.

The recently appointed Interagency Task Force on Invasive Aquatic Plants and Nuisance Species will begin its work in early 2002. This will include a review of current programs and evaluation of options for the broad array of invasive species problems facing Maine. In particular, the Task Force will begin guiding the development of an Aquatic Nuisance Species Plan for Maine.

January 15, 2002

CONTRIBUTORS & REVIEWERS

We wish to acknowledge the cooperation and generosity of the following entities that assisted the program during 2001

Department of Conservation: (DOC) Bureau of Parks and Lands and Waterways Program

Department of Transportation (MDOT)

Department of Agriculture, Food and Rural Resources (DAFRR)

Bureau of Public Safety (Commercial Vehicles and State Police)

Maine Turnpike Authority (MTA)

Lakes Environmental Association (LEA)

Volunteer Lake Monitoring Program (VLMP)

Portland Water District (PWD)

Auburn Water District (AWD)

University of Maine-Farmington (UMF)

Cobbossee Watershed District (CWD)

Maine Lakes Conservancy Institute (MLCI)

Maine Congress of Lakes Associations (COLA)

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INTRODUCTION:

This report is submitted in fulfillment of requirements under "An Act to Prevent the Infestation of Invasive Aquatic Plants and to Control Other Invasive Species". Section C-1 of that legislation requires reporting on the activities related to invasive plant education and inspections during 2001 and plans for 2002 and subsequent years. In this report, we quantify the costs and hours spent on these activities, and offer observations and recommendations for program improvements.

During this season DEP and DIFW enlisted the aid of a variety of state agencies and non-governmental groups. Some of the project elements, such as boat and trailer inspections, had great deal of uncertainty associated with them as to methods and efficiency, and thus were set up as pilot programs for 2001. Other activities, especially in education and outreach, built on previous work by cooperators and introduced some previously planned for new elements.

In addition, numerous towns and lake associations sponsored local work including posting signs, holding educational meetings and publications, and providing sites and volunteers for boat inspections and other activities, much of which is not quantified here.

In order to present a comprehensive picture of activities, we have organized this report in terms of functional areas: Education, Inspections and Enforcement, and Monitoring and Site Management. It is clear, however, that activities in most of these categories overlap considerably. For example, while thousands of boat and trailer inspections were done, the educational component of contacts between boat owners and individuals doing inspections was probably at least as important as efforts to intercept the plants themselves. Management of infested sites also requires that significant monitoring information be developed and maintained.

2001 Program

Education efforts

All of the cooperators played a part in this work. Significant staff time was devoted to outreach activities by DEP and DIFW, as well as by LEA, VLMP and other cooperators. In most cases, we endeavored to dovetail information and outreach by using existing programs and outlets, rather than creating new ones. The following is a partial view of the diversity of the program's education efforts.

* Over 160,000 warning brochures were distributed by a variety of entities, including lake associations, Town Offices, State Park staff and DIFW personnel.

* A thirty second TV PSA was produced and aired almost 1000 times in southern Maine; about 1/3 of these were aired free of charge.

* LEA developed and distributed more than 10,000 special brochures outlining the program and giving people background on the sticker requirement.

* Feature articles appeared in all of Maine's major newspapers, sometimes on several dates.

* The Maine Turnpike Authority toll takers handed out an estimated 20,000 special flyers to boaters entering Maine during 2001.

* Informational displays were set up, and brochures distributed, at seven official information stations statewide. A video display was also set up at the York rest area.

* The deployment of large warning signs was completed at 32 border crossing sites, including I 95.

* DEP and VLMP have provided lake associations and others with over 500 warning signs for posting boat launches statewide. DOC has posted almost all of their sites, and DIFW continues to post many of their facilities.

* DEP staff conducted orientation sessions and training for DIFW wardens in Regions A and B, DIFW Boating Safety Coordinators, and DOC Park personnel statewide.

* DIFW incorporated invasive plant information into over 20 boating safety courses, and gave out over 5,000 brochures. DIFW are planning to include information through ATV and Hunter Safety sessions, as well as through other programs. In 2001, DIFW safety education staff recorded almost 180 contacts with boat dealers, bass clubs, town offices, etc. to distribute materials.

* Inspections done by volunteers and DIFW wardens included handing out brochures as well as the educational content related to the interviews themselves.

* VLMP has trained almost 250 Plant Patrollers, and developed extensive training materials, including a field manual for identification and documenting invasive plants. VLMP staff identified over 60 plant specimens sent in by the public.

* VLMP made over 25 presentations during the summer of 2001 and coordinated with media on several newspaper and TV stories about invasive plants.

DEP conducted an Omnibus survey of randomly selected adults in southern Maine. Awareness of the invasive plant problem is now quite high (almost 80%), but many people were unsure of exactly what to do about the problem. When asked if they remove plants from their boats to prevent the spread of invasive plants, only 28% said that they did, while 41% said they did not know what to do or felt they could do nothing. This contrasts with the results of the interviews at launching ramps, where the great majority of boaters said they inspected their rigs for aquatic plants. This discrepancy is probably the result of how the inspection questionnaire was constructed. It is clear that we need to promote the message of how simple it is to prevent the spread of plants and to make boater self-inspection the rule rather than the exception.

A significant amount of information has been posted on the DEP website (http://www.state.me.us/dep/blwq/topic/invasive.htm and www.mainedep.com). DEP is also linked to a variety of sites nationwide for those who wish to do their own research. Other organizations, such as LEA and VLMP, have posted extensive information on their sites (www.mainelakes.org and www.mainevolunteerlakemonitors.org). DOC and DIFW have also linked their websites to DEP's page and posted information on invasive aquatic plants (http://www.state.me.us/doc/parks/programs/boating/milfoilalert.htmland and http://www.state.me.us/ifw/wildlife/milfoil.htm).

Inspection Activities

The Act required DEP and DIFW to establish a program to inspect watercraft, trailers and motors at boat launching sites and on roads near the state border. The implementation goal was set at 5,000 person hours of inspections, including up to 10 roadside locations.

Inspections of boats and trailers and other gear (anchors, lines, etc.) were carried out primarily in southern and western Maine. In addition to intercepting aquatic plants being transported between locations, the program gathered information from boaters as to their understanding of the problem, piloted methods of carrying out inspections, and provided educational materials to all those contacted. A brief questionnaire was administered to owners who consented to the voluntary inspections (Appendix A), and the results form the basis of much of the data cited below. Figure 1 illustrates the location of inspection sites and other activities during the 2001 season.

One of the goals of the project was to maximize compliance with the statutory provision against transporting aquatic plants. DIFW wardens and DEP staff did not pursue any formal enforcement actions against boaters in 2001, as it was determined that time is needed to ensure adequate understanding of the law before such actions are warranted. As noted below, there were almost 3000 inspections carried out and wardens logged thousands of hours of other boater contacts, all of which offered an opportunity to ensure compliance with the law and educate boaters.

Inspections at Boat Launching ramps

Inspections at launching ramps were carried out by a combination of contracted staff, DIFW wardens, and volunteers. DIFW wardens, primarily from Regions A and B, were detailed in pairs to inspect boats and collected survey data from boaters on Fridays and Saturdays during July and August. These teams typically spent four hours at each of two sites on any given day, visiting four lakes each weekend. Eventually, wardens visited 50 different ramps on 46 lakes.

The remainder of the ramp inspections were done by volunteers and some paid staff, organized and trained under contract with the VLMP and LEA or in a separate program organized by the PWD. LEA and PWD staff did most of the coordination and training, and developed protocol and training materials for volunteers (Appendix B). These inspections were done at 55 sites and included about 120 volunteers and staff. The total number of hours of inspections under the LEA operation amounted to approximately 1100, with additional time devoted by PWD volunteers and DEP staff. Besides the 120 volunteers, LEA arranged for 650 hours of paid staff time to supplement volunteer work at several key sites. PWD also provided numerous hours of volunteer and staff time for work at three sites on Sebago Lake.

LEA arranged for inspection work at six high priority sites, including four lakes with known variable milfoil infestations. In addition, the contract required recruitment of volunteers at as many locations as possible and allowed for limited cost sharing with local entities to hire inspection services as well as using volunteers. While cost sharing was provided for in this pilot, LEA found that this was not necessary during this short field season this year. They observed that, if funding is available, local cost share arrangements would be useful in promoting local involvement and recruiting volunteers. Hiring most of the paid inspection staff through one local coordinator such as LEA is a cost-efficient method to coordinate coverage with volunteers.

Recruiting large numbers of volunteers and providing significant coverage for scores of sites was a significant challenge for LEA staff. This was in part due to the relatively late start of

recruitment (the end of June) and the significant time required to develop a recruitment network. Nevertheless, this system of central coordination and training of volunteers, coupled with paid staff, accomplished a large number of inspections in a short time.

Some summary statistics for all ramp inspections including LEA, PWD, and DIFW programs are presented in Table 1:

Table 1: Summary Results of Inspections at Launching Ramp

	Number	**Percent**
Boats/Trailers inspected	**2848**	**100**
Maine Registered Boats	1724	60.5
Other New England States	491	16.9
Outside New England	633	22.2
Boats carrying Plant Fragments	**112**	**3.9**
Maine Registered Boats	58	3.4
Other New England States	13	2.7
Outside New England	41	6.5
Boaters Familiar with Invasive Plant Problem	**2526**	**88.7**
Maine Registered Boats	1557	90.3
Other New England States	425	86.6
Outside New England	544	85.9
Boaters Claiming They Inspect Their Own Boats Before and After Launching	**2344**	**85.5**
Maine Registered Boats	1408	81.7
Other New England States	395	80.5
Outside New England	541	85.5

The volunteers and staff participating in the program reported that the vast majority of boaters consented readily to the voluntary inspections. Every effort was made to keep the encounter brief (usually under 1-2 minutes) so as not to hold up the launching process. Of the majority of boaters who had heard something about invasive plants, the means by which they had heard was surprisingly varied and included television reports and PSAs (28 %), radio (5 %), print media, including newspapers (19 %), posters and signs (12%) and contacts with lake associations or other groups (13 %). About 3% of those interviewed reported hearing about the problem in other states. In addition to the direct contact reinforcing awareness of the invasive plant problem afforded by inspections, boaters were offered brochures and had an opportunity to ask questions of the inspectors and wardens.

While a relatively small percentage of boats (3.9% overall) were found to be carrying plant fragments, 112 actually had plant fragments on them, especially on boats and trailers leaving infested lakes. Identification of plant species was not possible with so many observers doing inspections and considering the condition of many of the plants removed from boats, so we could not determine how many of these fragments were invasive species versus other aquatic plants. A few of the reports (primarily from DIFW wardens) noted that the plants removed were marine in origin.

Given the partial nature of the overall inspection effort, it is likely that hundreds, if not thousands, of boats transport plant fragments into and between Maine lakes each summer. For example, at least 3% of the inspected boats from other states had plant fragments on them. As estimated below, the total number of boats entering Maine was in excess of 40,000 last summer. This would translate in to as many as 1200 boats carrying plant fragments. In addition, there are a number of boats launched whose trips originate within the state, and these apparently have the same rate of plants being transported, although they are less likely to be invasive plants. As infestations grow, these intra-state trips will become a larger potential source of spreading invasives.

One aspect of the inspection protocol that we should promote is more attention to inspecting anchor lines and fishing gear, with the permission of the boat owner.

Roadside Inspections and Traffic Data

This part of the project had two components: acquisition of traffic survey data by MDOT to estimate boat traffic flow in June-August and roadside vehicle inspections performed jointly by DIFW wardens and contractors.

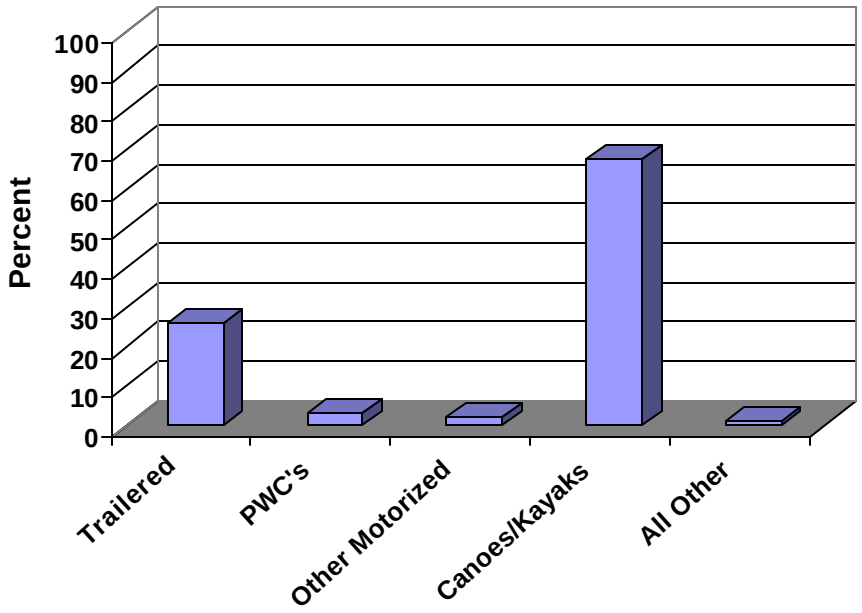
MDOT Traffic Data:

There are over 42 highway entry points into Maine as well as over 60 lesser roads (such as gravel roads used primarily to transport forest products). The majority of traffic entering Maine comes via I95 (35%) and a handful of other roads. DEP and MDOT staff selected sites on five other roads that total about 12 % of the additional total traffic. MDOT also provided traffic data on all major entry roads for 1999 and for I95 on selected weekend days in 2001. In addition, MDOT placed traffic counters on five of the roads included in our surveys for a week in July to estimate the relative traffic flow by day of the week.

MDOT survey sites for boats entering Maine in 2001 included I95 (Kittery), and Routes 2, 9,109, 202, and 302. These sites were selected for traffic surveys and for boat inspection locations in order to cover the highest percentage of boat traffic entering Maine consistent with reasonable logistics. In addition to I 95, the five routes surveyed varied from 1 to 5 % of the estimated total incoming traffic volume. MDOT staff observed that some other roads carrying significant vehicle numbers into southern Maine are largely local traffic and probably do not constitute a high percentage of boats.

Several MDOT staff were deployed on Fridays for eight hour shifts to record the number and state of origin of all boats, broken down by type. Fridays were chosen both for availability of personnel and as being likely to capture a representative flow of incoming watercraft for the sites. These counts were supplemented by Friday and Saturday observations at the roadside inspection sites. Weekday traffic volumes were estimated from the 1999 MDOT Annual Traffic Volume Summary. These data, along with MDOT traffic survey data on other entry points and our pilot inspections in 2001, allowed us to estimate the total number of boats entering Maine, the relative efficiency of weekend vs. weekday inspections, and the relative numbers of boats entering at alternative sites.

Figure 2: Watercraft Types Entering Maine: July-Sept 2001



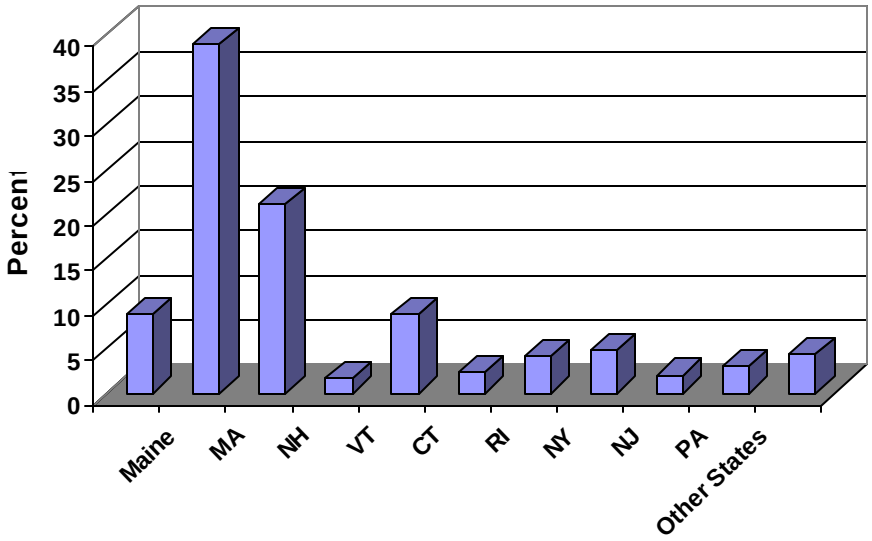
Typical summer weekday traffic on I 95 is about 35,000-45,000 cars per day northbound, with weekends being 2,000-5,000 higher. Peak hourly volumes occur between the hours of 7AM and 8 PM, with mid-late afternoon volumes often topping 4,000 vehicles/hour, especially on weekends. May and September average daily traffic is closer to the average annual flow, with a steady increase from early June to a peak in mid-August. Several other high volume road sites typically see 1,500-7,000 vehicles inbound per day.

Table 2: Average Daily Watercraft Entering Maine at Selected Points
(Estimated from 2001 Data)

Road (# days of Observations)	# Trailered Boats	# Other Motor Boat	# Personal Watercraft (PWC)	#Canoes/ Kayak	#Other Types
I95 (23)	163	14	21	366	8
202/11 Lebanon (9)	22	1	2	31	<1
302 Fryeburg (13)	26	1	1	200	1
2 Gilead (12)	10	1	<1	48	1
109 Acton (12)	59	<1	1	10	<1
25 Porter (4)	3	<1	<1	19	<1

Of the 18,000 boats tallied during our monitoring, about 1/3 were registered, motorized craft, and most of the remaining 2/3 were canoes or kayaks, attesting to the significant increase in the popularity of those types in the last few years. About 28% of all boats were trailered outboard or other types of motorized boats, while about 3% were personal watercraft (PWCs).

Figure 3: Origin of Watercraft Entering Maine July-Sept 2001



Maine registered boats (motor boats, PWCs) crossing the Maine border northbound represented about 9% of the total. Of other states of origin, Massachusetts boats represented 39%, New Hampshire 21% and Connecticut 9%. All other states and regions were less than 1-5 % each.

From our work this summer, it appears that over 200 powered boats (trailered, other outboards, or PWC's) pass northbound through York each day on Fridays and Saturdays, with daily weekday traffic probably 80-90% of those numbers. We estimated the total number of boats by type based on the figures above, and the relative percentage of overall traffic entering on each day during the daily traffic counts in August set up by MDOT, as well as historic figures for I95. The results in the table below are only an approximation, but they provide a reasonable estimate of total boat traffic on selected southern and western Maine roads that represent over 47% of the total summer traffic volume and the majority of boats entering the state.

Table 3: Estimated Total Number of Boats Entering Maine from all Roads During Summer Months **(Southern and Western ME only, 5/1 – 9/30)**

Location	# Trailered Boats	# Other Motor Boat	# Personal Watercraft (PWC)	#Canoes/ Kayak	#Other Types
All Roads	44,235	2,902	3,951	167,157	2,119
I 95 Only	17,413	2,208	1,448	37,624	858

Due to the high cost of more comprehensive traffic monitoring, we chose to collect data from selected sites and use statistics already available to create estimates of total traffic flow. One shortcoming is that some of the less traveled roads may be over- or underestimated in the number of boats entering due to local factors, such as proximity to certain lakes. In selecting the roads for traffic counts (as well as inspections) we were careful to look at not only existing traffic data, but

also the likelihood that that road would feed traffic toward highly used Maine lakes. We also recognize that traffic flow will vary from month to month due to differing use patterns in May through August and even due to weather conditions. Some of this was accounted for using relative monthly traffic flow data from MDOT's 1999 Annual Report. While our estimates are only approximations of the actual numbers, they give us some basis for projecting the volume and potential cost of roadside inspections.

Roadside Inspections

DIFW and DEP set up a pilot program to inspect boats and gear at selected roadside locations near the New Hampshire border. DEP contracted for services through VLMP to perform 600 hours of inspections at locations on I95 and at several roads on the New Hampshire border. The seven selected sites included I95 (York Rest Area and Truck Weigh Station), and Routes 2, 9, 25,109, 202, and 302. Fewer than the original target of ten sites were used in the pilot program because the relatively low traffic volume expected on other possible locations would make those far less efficient. We also felt that it was more important to have consistent, season-long data from fewer sites in order to establish the most efficient way to perform inspections.

Inspections done at the York rest area employed teams of one DIFW warden and 2-3 VLMP-contracted staff, one of whom tallied boats passing on I95. Staff were on site on Fridays and Saturdays from 8-4 PM from July 6 to September 1. They interviewed each driver of a vehicle transporting a watercraft and completed a voluntary inspection, as well as answering motorists' questions and handing out brochures. The team moved to the truck weigh station in York on one day to see if a larger number of motorists could be interviewed there. Despite MTA deploying a large lighted sign asking boats to stop for inspection, very few motorists actually stopped. This facility has a large capacity and would be the preferred inspection site if mandatory inspections were instituted.

Other road sites employed one DIFW warden and one contracted staff on the same days and times and using the same protocol as the York operations. MDOT made special signs that were deployed for several hundred yards before the station to let motorists know that there was a courtesy boat inspection for aquatic plants ahead. The inspection sites were moved each day in rotation to give balanced coverage except for Route 25 in Porter, which had relatively little boat traffic and was discontinued in July. Each road station had inspections done on 3-4 days in 2001.

Some of the prime questions we sought to answer with this pilot program were:

* How many boats will stop at voluntary checkpoints? How many will pass by?
* How familiar with the invasive plant problem are boaters entering Maine?
* What percentage of boats are carrying plants?
* How efficient is it to intercept boats and plants at border crossings?

Table 4: Summary Results from Roadside Inspections

	Number	Percent
Boats Passing Inspection Stations (motor boats only)	3035	100
Boats/Trailers inspected	370	12.2
Maine Registrations	26	7
Other New England States	190	51.4
Outside New England	154	41.6
Boats Carrying Plant Fragments	11	3
Maine Registrations	0	0
Other New England States	7	3.7
Outside New England	4	2.6
Boaters Familiar with Invasive Plant Problem	243	65.7
Maine Registrations	21	80.8
Other New England States	137	72.1
Outside New England	85	55.2
Boaters Claiming They Inspect Their Own Boats Before and After Launching	275	74.3
Maine Registrations	21	80.8
Other New England States	152	80
Outside New England	102	66.2

The majority of the 370 inspections performed during 27 days of surveys were on I 95. This was due both to the relative traffic volume and the fact that many vehicles are already stopped at the rest area and thus the owners could be approached easily. Of the estimated 3035 power boats (including PWC's) that passed inspection points, almost 88% passed by without stopping. It was clearly difficult to get motorists to stop on "secondary" roads, due to sight distances and speeds and to the fact that the signs clearly labeled the operation as courtesy inspections. A slightly higher percentage of vehicles stopped when the sign wording was changed to "Courtesy Boat Inspection, All Boats Please Stop".

The conclusions reached by staff and contractors working on this pilot include the following:

* A relatively small percentage of the inspected boats were carrying plants, but this may correspond to a large number overall.

* A majority of boat owners had heard about invasive plants.

* Those crossing the border on state highways were more likely to come from Vermont and New Hampshire, had a higher rate of familiarity with the issue, and were more likely to be on fishing trips. I95 had a greater variety of boating types, states of origin, and slightly less overall understanding of the invasive plant issue.

* A small percentage (10-15 %, 20-40 per day) of boats on I95 highway stopped at the York Rest Area and thus could be easily inspected. This represented the most efficient station in the pilot project in terms of number of staff hours per inspection.

* Use of the Public Safety truck weigh station yielded very few inspections despite high visibility signage. However, this would be good installation for mandatory inspections.

* Although about 12% percentage of boats stopped at the voluntary pull-off sites on other state roads, the numbers were small (usually 2-8 inspections per day).

* It would not be cost effective to maintain significant coverage for strictly voluntary inspections on most of the roads entering Maine (see budget section below)

Monitoring and Site Management

DEP and VLMP staff have received hundreds of telephone calls from concerned citizens about plant growth in their lakes. In some cases, we were able to answer questions over the phone and rule out the potential for concern. We have also developed simple guidance for callers to provide information to staff as well as directions for sending in plant samples to VLMP or DEP for identification. This has proven to be quite efficient in that the majority of plants are common native species, and we can quickly inform the concerned parties of that. When a sample turns out to be a plant of concern, DEP or VLMP staff visit the site and confirm the presence of an invasive plant and do a preliminary survey.

As of this date, DEP, VLMP and PWD have confirmed a total of eight lake sites and two river sites with populations of variable milfoil (M. heterophyllum) (Table 5 and Figure 1). Two other lakes (Little Sebago and Middle Range Pond) are also likely to be added to the list in 2002, pending field work. The true extent of variable milfoil distribution is not known yet. This has significant bearing on the probability of containment of the plant and our future strategies for controlling it.

DEP staff have done preliminary reconnaissance on the eight confirmed lake sites, and found considerable variation in the extent and conditions of these growths. Some, such as Thompson Lake, have had documented populations since the early 1980's. Others, such as Cushman Pond, are probably much more recent introductions. In order to better define the current status of these populations, and to give baseline data for future spread detection, GPS-GIS mapping of milfoil beds has been done on three lakes. Lake Arrowhead was done by DEP GIS program staff. Messalonskee Lake and Lake Auburn mapping was completed by the University of Maine-Farmington (UMF). The Auburn Water District has done an extensive habitat and occurrence survey on Lake Auburn. UMF has also begun GIS mapping of milfoil in Thompson Lake this season. Portland Water District maintains location information on confirmed milfoil populations in Sebago Lake.

These surveys and staff reconnaissance will form the basis for site management recommendations on several of these lakes. Some of these plans are quite simple, such as screening in the stream between Pleasant Lake-Parker Pond (Casco) with the focus on containing the plant in its current location. Others, such as sites on Sebago Lake, are more complex, and the emphasis will be to reduce both the spread within the lake and the potential for transport out of the lake to other waters. Details of these plans will be developed over the winter and spring of 2001-02.

Table 5: Confirmed Variable Milfoil Infestations

Water Body Name	Midas	Town	First Identified	Status of Infestation
Thompson Lake	3444	Casco, Otisfield, Poland, Oxford	About 1975	Found in most shallow-water habitat throughout the lake. Heavily infested areas are "The Heath" at the south end and the shallow area at the confluence of Greeley Brook.
Sebago Lake	5786	Various	About 1970	Portland Water District mapped 12 location of colonies
Cushman Pond	3224	Lovell	1996	Kezar Lake Watershed Association, residents of Cushman Pond, DEP, VLMP and the Town of Lovell have established an ongoing control program to minimize the spread of this aggressive plant.
Messalonskee Lake	5280	Belgrade, Sidney, Oakland	1998	Heavily infested area is by the Public Boat Ramp in Belgrade, where Messalonskee Stream enters the lake. Much of stream between Messalonskee Stream and Long Pond is also heavily infested.
Lake Auburn	3748	Auburn	2000	Heavy in the northwest corner of the lake where the outlet stream enters.The milfoil is situated very close to a traditional boat launching site.
Short Stream between Pleasant Lake and Parker Pond	3446 3388	Casco	2000	A survey of Pleasant and Parker in 2000 did not reveal milfoil in either. The stream connection makes both lakes highly vulnerable to an infestation. One colony was found in the outlet area 8/2001.
Little Androscoggin River		Welchville	2000	Site not surveyed as of 12/01
Little Ossipee River Flowage or Arrowhead Lake	9715	Waterboro and Limerick	2001	The extent of the infestation is being evaluated during the 2001 summer season.
Pleasant Pond or Mud Pond	5254	Gardiner and Richmond	2001	Plant was identified by trained volunteers and is extremely dense by the Richmond boat ramp. Infestation is being evaluated during the 2001 summer season.
Presumpscot River	.	Windham	2001	Plant identified by the Volunteer Lake Monitoring Program (VLMP). Dense beds between Dundee Pond and Newhall.

While eradication of invasive plants is seldom successful, there are instances where early intervention may either eliminate a new plant population and check its spread. DEP has developed guidance for one of the least intrusive methods: hand pulling of plants. Usually done by scuba divers, this method is labor intensive and must be repeated several times during 2-3 years to be optimally effective. It has the advantage of being selective (thus protecting most native plants) and accomplishing long term control. DEP has issued Permit by Rule

authorizations for removal of plants for locations in Little Sebago Lake (lake association project), the outlet of Pleasant Lake (DEP project), and in Middle Range Pond (lake association and VLMP). We anticipate that these sites will be re-visited in 2002 and 2003, with an eye to follow-up removal and further monitoring. The Cushman Pond Association continues to hand pull milfoil plants in that pond, with help from the Kezar Lake Association and the Town of Lovell.

Our experience in 2001 has underscored the time consuming nature of responding to the public and, in particular, of formulating acceptable plans to control invasive plants in a diversity of sites. Portland Water District and DOC have taken the lead in planning for site work in 2002 at the Sebago Lake State Park launching facility, as this is one of the most problematic sites in terms of likelihood of spreading the plants. Their current plan is to use signs and buoys to guide boats into defined channels at the launching facility and in the Crooked River, thus reducing the contact between boats and milfoil beds. In addition, a boat inspection operation at the ramp will reduce the number of plants exported via that popular site.

The Auburn Water District has taken steps under its authority to manage Lake Auburn to restrict power boat access in the infested northwest corner of the lake. AWD has also proposed measures (bottom barriers and a defined access channel) at the north Auburn site. They wish to continue allowing some public access there while reducing plant spread. Public boating access at the main launching ramp on Route 4 should be unaffected under this plan.

VLMP has developed a "Plant Patrollers" program, loosely modeled on successful programs in other states. Like the original lake water quality monitoring program at VLMP, the volunteers not only will provide a lot of valuable data for the program but will also vastly increase the coverage of lakes, documenting where these plants occur. To date, the half-day identification and training workshops have hosted over 250 participants. Volunteers get an extensive packet of information, including a field manual and instructions for various levels of monitoring ranging from rudimentary screening around boat launches to complete shoreline surveys including habitat information. We have encouraged lake associations on all the infested lakes to enroll monitors. This will allow us to better track expansions of populations and coordinate local projects for managing infestations and preventing spread.

It has also become obvious that, with the exception of fish, there is relatively little known about aquatic plant distribution in Maine. The Aquatic Biodiversity Project of the University of Maine, which is supported by a variety of agencies and the Maine Outdoor Heritage Fund, is attempting to identify the gaps in our understanding of natural communities in this state. In order to understand the potential effects of introduced aquatic species and the value of natural communities that are at risk, basic work is needed on the distribution of native species and community types. The Natural Areas Program (DOC) has begun some of this work. The Invasive Species Program should provide at least some level of basic funding for the next few years in order to develop this information.

Costs of 2001 Operations

Chapter 434 provided funding in the amount of $560,000 for this fiscal year, split 59/41% between DIFW and DEP. Of this, $201,566 (about 37%) was designated Personal Services. As of October 15, 2001, some of the major program expenditures were as follows:

Table 6: 2001 Selected Operating Costs

Agency	Note	Type	Activity	Amount
DIFW	DIFW Warden Service	Personal Services	Inspections, education and Boater Contacts	$40,000
DIFW	Safety Education Staff	Personal Services	Boater Safety Course Development and Presentations	$13,000
DIFW	Safety Education Staff	All Other	Boater Safety Course Development and Presentations	$7,500
DEP	Contracted Services	All Other	Boat ramp and Roadside Inspections	$43,500
DEP	MDOT Services	All Other	Traffic Data	$10,000
DEP	UM Farmington	All Other	Monitoring/GIS	$1,200
DEP	MDOT Signs	All Other	Warning Signs	$5,542
DEP	Contracted Services	All Other	Printing	$2,850
Total				**$123,592**

Other anticipated major expenditures for the second quarter of FY 2002 include sticker production and distribution (DIFW- All Other) for approximately $ 80,000, the re-design and printing of 250,000 warning brochures (ca. $10,000). The estimated number of hours spent on the program up to October 15, 2001 include:

Table 7: Estimated Hours Spent on 2001 Inspection and Education Activities

Activity	Agency	Person Hours	Notes
Inspections	DIFW/Warden Service	1262	Ramp and Roadside Inspections
Inspections	DEP	302	Includes some Supervision and Coordination,
Inspections	Contractors	901	Roadside operations
Inspections	LEA staff	715	Field services & some Coordination
Inspections	PWD staff		Not estimated as of report date
Inspections	Volunteers		Not estimated as of report date
Education	DIFW Public Safety	>400	Contacts with marinas, bass clubs, stores, safety courses
Education	DEP Staff	515	
Education	LEA		Not estimated as of report date
	VLMP	500	
Total Inspections		**> 3180**	
Total Education		**> 1415**	

This does not include substantial time by DIFW staff, such as oversight of the inspection activity by the Warden Service supervisors or information and education coordination through DIFW Augusta headquarters. In particular, the Warden Service logged 2043 hours of general law enforcement and 8592 hours of fishery enforcement duties as part of their regular programs. This generated thousands of contacts with boaters that offered opportunities to educate them about invasive plants and ensure better compliance with the law. The tallies above also do not include DEP staff time for public relations and education outside of the line items above or considerable staff time in field work, answering questions from the public, making arrangements for signs and printing etc. Considerable volunteer effort has been generated, especially by LEA and PWD, and there are numerous lake groups and other organizations who have conducted inspections or education work, not all of which has been reported to us.

Time spent on monitoring include 100 hours of DEP time and an estimated 120 hours by VLMP staff along with numerous hours by PWD on Sebago Lake and AWD on Lake Auburn. In addition, UMF interns and faculty dedicated more than 250 hours in field reconnaissance and GIS mapping on four lakes.

2002 Program Recommendations

Recommendations for 2002 are based on experiences in 2001 and on the projected budget available. The minimum elements are laid out below, and depend on resolution of budget details (see 2002 budget section).

Education

Educational activities should focus on reinforcing the message about the threat of invasive plants, but should emphasize the simple steps people can take to avoid their spread. Both the Omnibus survey and boater responses during inspections tell us that people do not fully realize just how easy prevention can be, and are unclear about what the most important actions are. In addition, considerable effort should be expended in making boaters aware of the requirement to purchase and display a "Lake and River Protection" sticker on their boat, and why that is needed. This should boost sales and compliance with the law, and in so doing offer an avenue for information to be given to boaters.

DEP has re-designed the warning brochure and printed 250,000 copies. A large number of these will be sent to the more than 1000 DIFW agents who sell fishing licenses and register boats, along with posters and display hardware intended to promote awareness of the sticker and explain why the new requirement exists. These brochures will also be distributed as part of DIFW safety courses and by wardens. We anticipate that many of the DOC parks will give them out to arriving boaters and that they will be part of the information given to boaters in any inspections done this year. We also anticipate distribution of more than 30,000 by a variety of entities (Maine information centers, LEA, lake associations, DEP personnel etc.) and at fairs and trade shows.

A special postcard will be designed and about 144,000 of these will be direct mailed in March 2002 to in-state boat owners and selected Maine fishing licensees from other states. The message will include a notice about invasive plants and what to do to avoid spreading them. It will also notify them that there is a sticker requirement for 2002, and what the funds will be used for. This postcard will also be handed out by MTA to vehicle drivers bringing boats into Maine beginning in late April or early May 2002.

The boat ramp warning sign will be re-designed to be larger and more visible, with a simpler message. We will select high priority locations to replace the current signs as opportunity and staff time permit, and to post a number of ramps that are not currently posted. Part of this should also include re-posting signs in more visible and effective locations. We have begun posting special signs for ramps on lakes with known infestations.

Numerous website improvements are planned for 2002. Maps showing locations of infestations will be added, along with updated program information, guidance, and other information for the interested public.

We expect to provide better orientation and references materials for state employees in DEP, DIFW and DOC, especially for regional staff. This will enable better distribution of educational materials and provide more effective response to public inquiries.

A number of valuable educational elements are recommended, but may not be included in 2002 due to budget constraints. Among these are:

* Poster version of new ramp signs	$1,000
* Radio PSA, statewide in mid summer	$15,000
* Targeted newspaper ads	$15,000
* Information kiosks for boat ramps (local cost share)	$ 4,000

Roadside Inspections

Voluntary roadside inspections have not proven particularly cost-effective, in large part because of the amount of staff and contractor time it takes to provide adequate coverage on roadside locations that have relatively low traffic volumes. Based on results from this year, providing eight hour coverage each day for one site costs about $430 and yielded on average less than 10 inspections ($550/day and 25-50 inspections for the York rest area operation). Weekday operations would be less cost effective since they would yield even fewer boater contacts per hour. The York rest area does experience a substantial amount of boat traffic during both weekends and weekdays. It appears that teams of two contracted staff would be adequate to interview the majority of boat owners who stop, reducing daily costs to about $300. The use of Warden staff may not be the most economical there.

Making inspections mandatory on I-95 would greatly increase the numbers of inspections and would also increase the cost (more staff time). We use the term “mandatory” here to mean that vehicles transporting boats would be required to stop, but inspections of their equipment would be strictly voluntary. Such checkpoints would be similar to commercial vehicle checkpoints where all commercial trucks are required to stop. Notification of the mandatory checkpoint would be by sign board, and vehicles transporting boats choosing to pass the checkpoint without stopping would be pursued by a law enforcement officer and signaled to stop.

In the case of the I95, mandatory inspections from June 1 to September 1 would result in up to 8,000 inspections for operations covering three day weekends (Memorial Day through Labor Day) and 15,000-18,000 for 7-days/week, assuming eight hours per day operation. Peak boat-vehicle traffic of 30-50 inspections/hour would require at least one uniformed officer and 3-4 other staff, for an hourly cost of about $105 and a per-inspection cost of $3-5. Total costs would be between $30,000 and $75,000 depending on the options chosen. This does not include set- up costs for signs, and other equipment, but does assume use of the York Truck Weigh Station. It also does not include the posting of law enforcement officers to pursue vehicles with boats that pass the mandatory inspection facility.

Future use of roadside inspections on major highways should be given careful consideration. These inspections when properly set up would most likely meet standards set for lawful checkpoints. The costs and disruption to traffic on highways such as I-95 should be weighed heavily against other methods for inspection of boats destined for freshwater in the State of Maine.

One other option would be to continue weekend-only boater contacts and inspections at the York rest area using contracted services similar to 2001 (estimated cost <$8,000). However, the current budget projections do not support funding for this option due to a shortfall in revenues in the fourth quarter, as detailed below.

Inspections at Launching Ramps

Boat ramp inspections have the disadvantage of being spread out, potentially missing a large number of boaters. They offer the advantage that boaters are already voluntarily stopped and that high-volume boat launching facilities can be chosen. A relatively low cost combination of volunteers and paid staff (such as temp agency staff, local youth corps members, etc.) can generate a large number of boater contacts. Care has to be taken that these inspectors are properly trained and that good protocol is followed.

This is best done through a central coordinating entity. During 2001, LEA provided that function, recruiting and training volunteers, providing them with written instructions, and offering a central place for coordinating inspection location and groups. LEA also provided paid staff for high priority sites and to augment local volunteer time. The net cost of this part of the operation in 2001 was $14,810, which amounts to less than $5 per inspection. We expect that there will be more interest by volunteer groups in 2002 but that the need for some paid staff and central coordination will continue. This should reduce the cost per inspection. LEA has offered to continue in its role as coordinator for this part of the program, at least on a regional basis. Addition of some regional coordinators, recruited in conjunction with COLA, may provide wider and more efficient geographic coverage.

The budget item included for this is inadequate to meet the expected public demand, but allows at least a modest maintenance of this part of the program. Under this scenario, we expect that about 2000-3000 inspections might be accomplished (about 700-900 paid hours + volunteers time). The budget should be increased by as much as $50,000 to allow for more complete coverage on busy ramps and to cost-share some local expenditures.

Launching ramp inspections by DIFW wardens should continue in 2002 at about the same level as the previous season. Wardens may not need to be deployed in teams, especially at lower-volume ramp locations. Alternatively, warden teams could be focused only on busy launching sites and high use periods. Some consideration was given to pairing each warden with one or more volunteers, but the logistics of coordinating this is probably not efficient. Attention will be focused on avoiding duplication of coverage between the Warden Service and volunteers and directing paid staff to busier ramp locations, although that was not a serious problem in 2001.

Monitoring

VLMP will continue the Plant Patrollers Program in 2002. This will include printing the field guide (a substantial number of which will go to other groups, such as DIFW wardens, DOC park staff etc.) and running at least ten workshops. A significant amount for VLMP staff time will also be budgeted for public information needs and support of monitors. A central database will be set up to track information produced and allow review of knowledge about monitoring on any given lake in the system. The budget contains some support for these workshops and the monitoring program, but the VLMP will have to support some of its other invasive species activities from private grants and other funding sources. This will place an added strain on the VLMP program, and we have recognized the need for an additional $15,000 support for 2002 that could not be included in the present budget. This would be primarily in the form of follow-up support and site visits needed to support the volunteer monitors and to reduce demand on state staff services.

DEP will support some additional GPS mapping of invasive plant colonies, primarily in selected sites such as completing the Thompson Lake coverage and mapping places where site

management requires monitoring information. Some of the cost of this is personal services from DEP staff, with a limited amount of contracted services, probably through UM Farmington.

Site Management

We have begun operations at several sites with plant infestations. DEP staff will work with local cooperators in most instances to continue work on a limited basis where opportunities exist to reduce or eliminate infestations. Additional site management activities currently proposed for 2002 include:

Lake Auburn. The Auburn Water District has set up surface use restrictions and placed marker buoys under their authority as a chartered water district. They are proposing a bottom barrier to allow some public boating access in the northwest area and additional signage in "The Basin" area, which also has scattered populations of variable milfoil.

Sebago Lake State Park: DOC and the Portland Water District are proposing a series of buoys to mark navigation channels to reduce boat contact with milfoil populations at the popular ramp site. The use of a bottom barrier in the vicinity of the launching ramp was considered, but it was not deemed cost effective. However, we anticipate continued inspections at that ramp using staff coordinated through LEA. DOC staff will also hand out information at the Park and the Songo Locks station.

Pleasant Lake, Casco: The Pleasant Lake-Parker Pond Association is proposing placement of screens on either end of the "Lilly Brook" area to contain the infestation and reduce transport of fragments from the infested site. In November of 2001 temporary screens were placed by the Association, but these screens will be removed in May when permanent installations allowing for adequate fish passage have been designed. DEP staff hand-pulled the only other known milfoil population (Pleasant Lake outlet) and will need to do follow-up removal in 2002 by scuba divers.

As of the time of this report, plans have not been formulated for a number of other sites such as Messalonskee Lake, Pleasant Pond (Litchfield), and Lake Arrowhead, although there has been some interest expressed by local residents for projects. Messalonskee Lake has very extensive milfoil beds in the southern end and Belgrade Stream as well as scattered pockets along the east and west shores. Reducing spread from the lake to other nearby, high-value lakes may require surface-use restrictions being placed in the southern end. Local residents are considering their options for Pleasant Pond.

Residents of Lake Arrowhead have suggested using a lake drawdown to control the limited infestations in that lake. This case illustrates the complexity of control techniques. Drawdown may control the milfoil beds in the lake, but would have significant destructive effects on native plant communities, invertebrates and fur-bearers, as well as the potential for disruption of the prize bass fishery in the lake. Timing and extent of a drawdown would have significant bearing on both the effectiveness of milfoil control and the biological disruption it would cause. Efforts are underway to see if there is an alternative, and discussions are ongoing between state agencies and the Lake Association about these options.

We anticipate cooperating with a number of lake associations to allow hand removal of small infestations in 2002. In 2001, DEP has helped local groups file NRPA permits to facilitate this process and reduce the cost to the cooperators. Associations are active on Cushman Pond, Little Sebago Lake and Middle Range Pond, where we need follow-up inspections by divers, monitoring by local volunteers, and/or confirmation of reported milfoil populations.

The time and complexity involved in working on infested sites dictate that effective projects will only be possible on a subset of sites, and most of those will require local cooperators to reduce cost and make the efforts feasible.

2002 Budget

The budget below (Table 9) is based on remaining moneys advanced under from the Rainy Day Fund and anticipated income from sticker sales. DIFW projects that sticker sales could generate as much as one million dollars and be adequate to fund the program as proposed over a calendar year. However, the timing of the payback to the Rainy Day Fund at the end of FY 2002 will generate a substantial operating deficit in that quarter (Table 8). Under the current scenario, the program will not have sufficient funding to maintain full operations for the coming field season. In particular, the fourth quarter re-payment will leave both DEP and DIFW with budget shortfalls of up to $120,000 each during a time when the maximum expenditures are needed. This stems in part from the lag time in receipt of revenues from sticker sales, which are anticipated to be at least one month. The history of cash flow from boat registrations and some uncertainty over the compliance rate of the sticker program during the first year suggests either curtailing the recommended budget significantly or re-scheduling the repayment to even out the availability of funds.

Table 8: Projected Sticker Fee Revenue for Calendar Year 2002

Fiscal Year	Quarter	Total Revenue for Quarter (Resident and Non-Resident Stickers)	Scheduled Repayment (Current Legislation)
2002	3	$ 38,880	
2002	4	$ 252,720	$ 530,000
2003	1	$ 689,400	
2003	2	$ 51,400	

Expenditures for the 2002 calendar year will depend in large part on whether the program is modified by the legislature. Scheduling re-payment of the Rainy Day Fund ($560,000) over the next two fiscal years, or at least delaying until the third quarter of FY 2003, should allow the basic program to operate without significant disruption in 2002. The budget below outlines some of the larger proposed expenditure areas projected for 2002.

Table 9: Projected Budget for Calendar Year 2002

	DEP	**IFW**
Personnel Related	$ 199,420	$ 120,000
All Other		
Education	$ 46,400	$ 7,500
Monitoring	$ 10,500	$ 5,000
Sticker Production & Promotion	$ 25,000	$ 80,000
Site Management & Rapid Response	$ 30,000	
Inspections	$ 15,000	$ 15,000
Task Force & ANS Plan	$ 5,000	
Totals	**$331,320**	**$ 227,500**

As noted in the sections above, we have identified other program items in the following areas which are not part of our current proposed budget.

* Education	$35,000
* Inspections (Launching Ramp and I95)	$50,000
* Monitoring	$15,000
* Local Cost Share Projects	$25,000
* Native Plant Species and Habitat Evaluation	$15,000

Whether program funding in 2003 will be adequate for address these needs is not clear at this time. If adjustments of the payback schedule are authorized early enough in the current legislative session, some of these elements may be included.

Other Program Areas

Interagency Task Force

Governor King completed appointment of the citizen members of the Interagency Task Force on Invasive Aquatic Plants and Nuisance Species in November. As directed by the legislature, it contains a broad representation of lake user groups as well as other interests, and the representatives of five state agencies.

This Task Force is charged with examining needs related to research, control and eradication of invasive aquatic plants and nuisance species. The Task Force may make recommendations to the Land and Water Resources Council on matters as diverse as the importation of invasive plants and nuisance species and methods to improve cooperation of governmental agencies and non-governmental groups.

It is also charged with forming a northeastern regional panel to coordinate activities to prevent the spread of invasive species. A regional Aquatic Nuisance Species (ANS) panel has already been formed by state representatives and federal agency staff, the mission of which is to promote interstate cooperation and contacts with the federal ANS Task Force. Several meetings were held in 2001, including the final organizational and work plan meeting in November of 2001. DEP and DMR representatives attended that meeting, and DEP staff will keep the regional panel informed of progress on the state ANS plan. Maine's Task Force should coordinate with this body. There is also a Northeast Aquatic Plant Management Society, which has region-wide members from state agencies, the consulting profession, contractors, and lake groups.

ANS Plan

One of the priority items identified in legislation is the formation of a comprehensive state plan that meets the requirements of the National Invasive Species Act. The Volunteer Lake Monitoring Program received a private foundation grant in 2001 to hire a consultant whose task is to draft this plan. In November, a contractor was selected by VLMP, and she has begun outlining the plan and information gaps which must be addressed. DEP staff is recruiting a working group of state agency, university, and private group representatives to guide in the initial drafting of the plan. This process will be closely coordinated with the Task Force to ensure its acceptance. The Task Force should pass the final plan draft to the Land and Water Resources Council for review and

eventually to the Governor's office for submission to the federal government. More detail on the scope and requirements for this plan may be seen at the following website: (http://www.anstaskforce.gov/mgtplans.htm)

Personnel and staffing:

DEP has hired one staff position to coordinate the program elements. Although two more staff were authorized last year, hiring these staff (and the amount of work accomplished this year) will depend on the final budget projections for calendar year 2002. Our experience in 2001 has shown that at least one additional staff is absolutely necessary to fulfill the most important program elements outlined in this report. This will not allow significant progress in a rapid response capability, site management, and some education elements, which require a third staff member. DIFW will defer hiring staff authorized under the Act until the program funding allows. However, they will continue to use wardens and other staff on overtime basis to carry out inspections and other special details.

Conclusions

Few major regulatory changes or changes to legislation are recommended at this time. The Task Force may consider recommendations during the coming year as they deliberate on the priorities for ANS operations in Maine.

A number of citizens have commented that they believe the laws regarding municipal authority to require inspections of watercraft launched within town borders is unclear. Before statute changes are considered, this question should be examined by the Attorney General's Office and the Maine Municipal Association.

One area that is being addressed is that of aquatic herbicides. While they are illegal to use without a discharge license, the active ingredients are not restricted at this time and several formulations are freely available. This leads to a situation where herbicides are applied by untrained citizens in waters such as lakes where it is highly to use them. The Pesticides Control Board is considering changing the status of several aquatic herbicides to "restricted use", to reduce the likelihood of illegal use of these substances. However, the interstate sale of herbicides through mail and internet sources is poorly controlled, and there are limitations as to what any state can do to restrict sales or change labeling.

Several conclusions can be drawn from 2001 operations:

1) Aggressive public relations has been effective in raising awareness to the Invasive Species problem. However, changes in behavior are still needed and the 2002 effort needs to target that. In addition to the boating public, several other audiences, such as the aquarium trade and water gardeners, should have more attention paid in outreach efforts, including identifying commonly sold invasive species.

2) Non-governmental group participation is crucial for cost-effective operations. The model of state and NGO cooperation can ensure the best use of state resources by multiplying them at the local level.

3) Boat inspections at launching facilities are useful and cost –effective in education and assessing program effectiveness. Intercepting plants is a secondary, but still valuable benefit.

4) Full implementation of state and local operations will take until calendar year 2003, especially given the time lag for sticker program to go through one cycle and to re-pay obligations under current legislation. Projected revenues should be adequate for an effective program especially if out- of-state compliance with the sticker requirement is high.

5) Significant difficulties exist in managing infested sites. Balancing public access and resource protection with local needs and projects requires development of compromises based on improved understanding of control technologies and costs.

6) Completion of a federally-acceptable ANS plan by September of 2002 will be a significant challenge. However, Maine's program will stand alone regardless of when a plan is approved by the federal government, and the plan will give a vehicle to explore other issues besides invasive lake plants.

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Appendices

Current Legislation

2001 Protocol for Boat Inspections

2001 General Guidleines for Courtesy Inspections